

ABSTRACT OF THE DISCLOSURE

A semiconductor memory device includes word lines, bit lines, first memory cells, second memory cells, a memory cell array, a row decoder, a row driver, a column decoder, a column driver, and a sense amplifier. The first memory cell includes a magneto-resistive element which has either a first resistance or a second resistance smaller than the first resistance. The second memory cell includes a magneto-resistive element which has a resistance between the first and second resistances. The memory cell array includes the first and second memory cells disposed in intersections of the word line and bit line. The row driver supplies a first write current to the word line. The column driver supplies a second write current to the bit line. The sense amplifier amplifies data read from the first memory cell.